Land Use 2025-State Land Use Policies and Plan Update

Proposed Methodology for

Land Intensity Assignments and Land Use Scenarios

Geographic Analysis in Land Use Planning

- Attempts to answer: what is optimum use for land in the foreseeable future?
- Suitability/capability – based on land's intrinsic features
- Infrastructure analysis – optimize investments; minimize resource conflicts
- Sketch planning – define, generally, areas for different major land uses based on urban structure, observed patterns and trends
- Scenarios – devise and assess different alternative future land use schemes

1975 Plan

- Suitability analysis
- Five Alternative future “sketch” plans

(Trend, Industrial Ring, Shoreline, Outlying towns, Open space/urban core)

- Synthesis, adjustments for policies
- Final future plan

1989 Plan

- Identified land for different development intensity potentials:
  - ADP1: no constraints or moderate constraints w/sewer = 4+ du/ac. Res. & mixed
  - ADP2: moderate constraints, all other w/sewer = 1-4 du/ac. Limited commercial.
  - ADP3: many constraints, no sewer < 1 du/ac
  - ACP: significant constraints = conservation priority
- 2 iterations of intensity assignment
- No scenarios, but stressed access to infrastructure, infill and centers

Geographic Analysis for the 2004/5 Plan Update – Where we are...

- Developed and protected land delineated
- Undeveloped/unprotected land (~42% of state)
- All land assessed for incidence of 8 resource properties/constraints:
  - Surface water and wetlands
  - Flood hazard areas
  - Soils-based constraints to development
  - Agriculturally-significant soils and active farmland
  - Groundwater resource areas
  - Major forested tracts
  - Surface public water supply watersheds
  - Critical habitats
- Concentrations identified and delineated as range 0-8

Options --

1. Reproduce what 1975 plan did
2. Reproduce what 1989 plan did
3. Scenario analysis
4. Some hybrid

What we are proposing as next step

- Combination of 1989 plan approach & scenario analysis
- Plan outline calls for alternative future land use *scenarios* to be developed & tested.
- Four tentatively identified:
  1. Trend
  2. Centers & Corridors
  3. Urban/Infill
  4. Composite

Why Scenarios?

Assumptions:

- Land is not equal with respect to accommodating new development
- Supply of suitable land exceeds needs
- Allows discretion in what areas growth is directed to
- Public policy should not be passive towards market pressures on land
- Rather, planning and policies should direct growth to meet societal objectives (clean air, water, economic opportunity, equity, etc.)
- Scenarios allow alternative land use patterns to be assessed relative to desired outcomes

Scenarios:

- *"What if?"* tool -- Allow testing different assumptions on the geographic pattern and intensity of future growth
- Trend – assumes that we keep doing what we are doing
- Others: assume some change in direction re: distribution and/or intensity of land use as applied to new (future) growth

How can we differentiate future land use scenarios?

- Differentiate via different assumptions...

1. Differences in locations of growth – e.g., what geographic areas is growth directed to in each scenario
2. Differences in intensity of growth – efficiency of land usage

Scenario Variables

- SPATIAL DISTRIBUTION OF GROWTH:
  - Trend: growth in areas adjoining existing developed areas; no change in patterns
  - Centers/corridors: 75% of new growth within centers and corridor zones
  - Infill: 75% of growth within 2000 urban area boundary; 35% within 1990 urban boundary
  - Composite: 75% of growth within 2000 urban boundary; 40% of growth within 1990 urban boundary

Scenario Variables:

- Efficiency of new land usage (overall)
  - Trend: continue current intensities
  - Centers/Corridors: 10% less new land than trend
  - Infill: 15% less new land than trend
  - Composite: 20% less new land than trend

Proposed Methodology

Step 1: Intensity Potential Categorization

A. **Integrate suitability analysis results with PW&S infrastructure; assign intensity classes to land**
   - **"A" High -- 4+ du/ac; C,I,M**
   - **"B" Moderate -- 1-4 du/ac; C,I,M**
   - **"C" Low -- 0.25 – 0.9 du/ac; limited C,I,M**
   - **"D" Conservation/Limited -- <0.25 du/ac; limited C,I,M**
   - **"E" Conservation/very limited development**

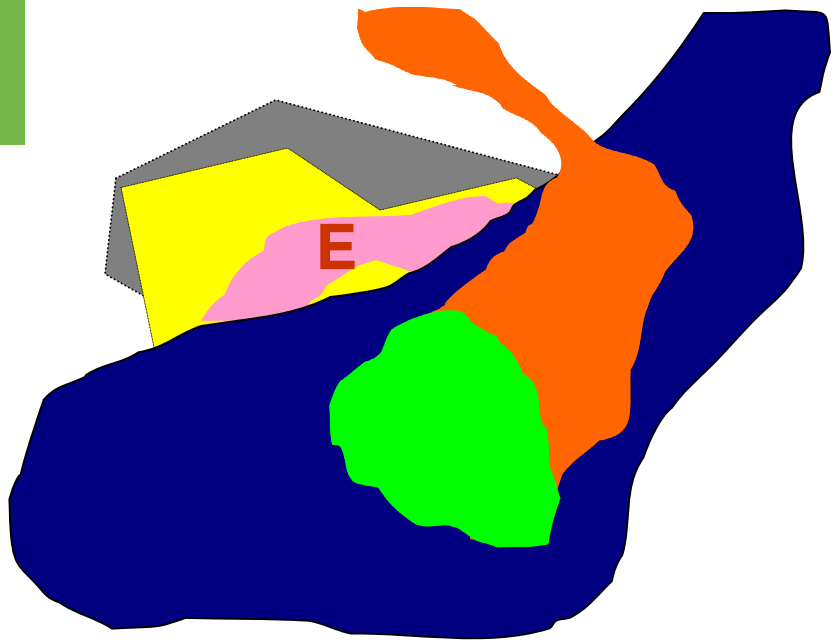
B. **Second interation, prioritize based on PS&W and arterial highway proximity**

Step 1: Integrate Suitability and Infrastructure Data to Assign Development and Conservation Potential Classes

Input: Land Suitability: # of constraint/value layers

Input: Infrastructure – Public water & Sewer

Output: Areas categorized A-E development/conservation potential

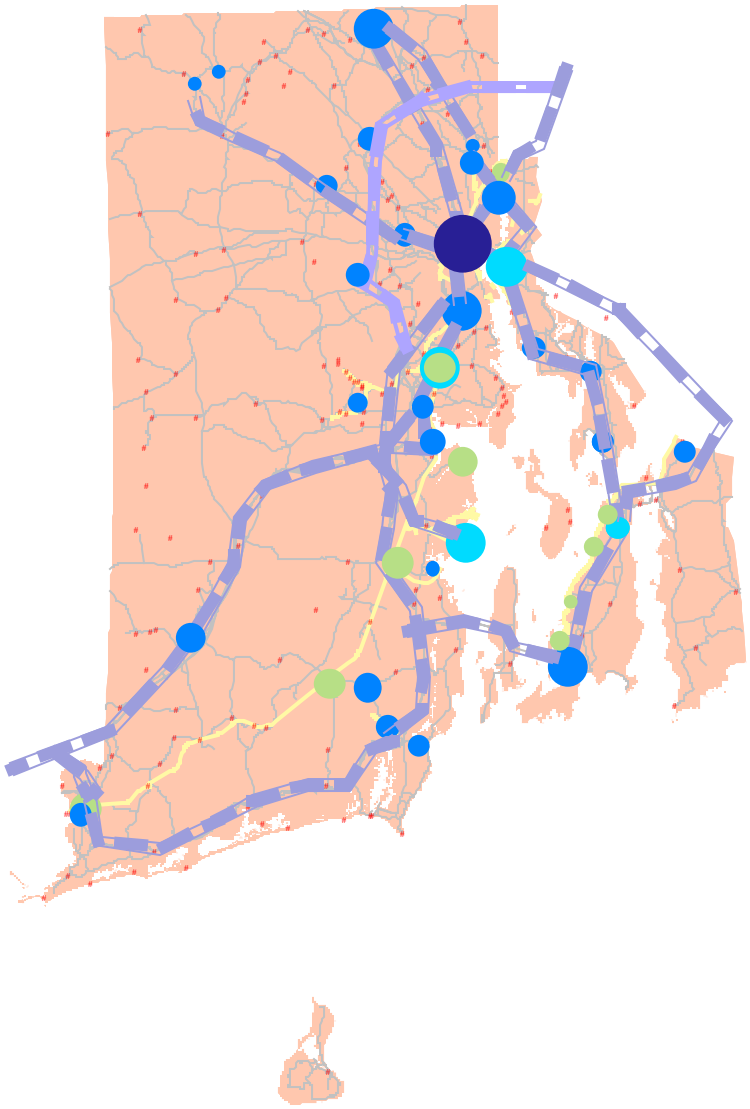


Step 2: Delineate geographic templates = growth areas for each scenario

Example: Centers & Corridors

Input: Highway/ Rail

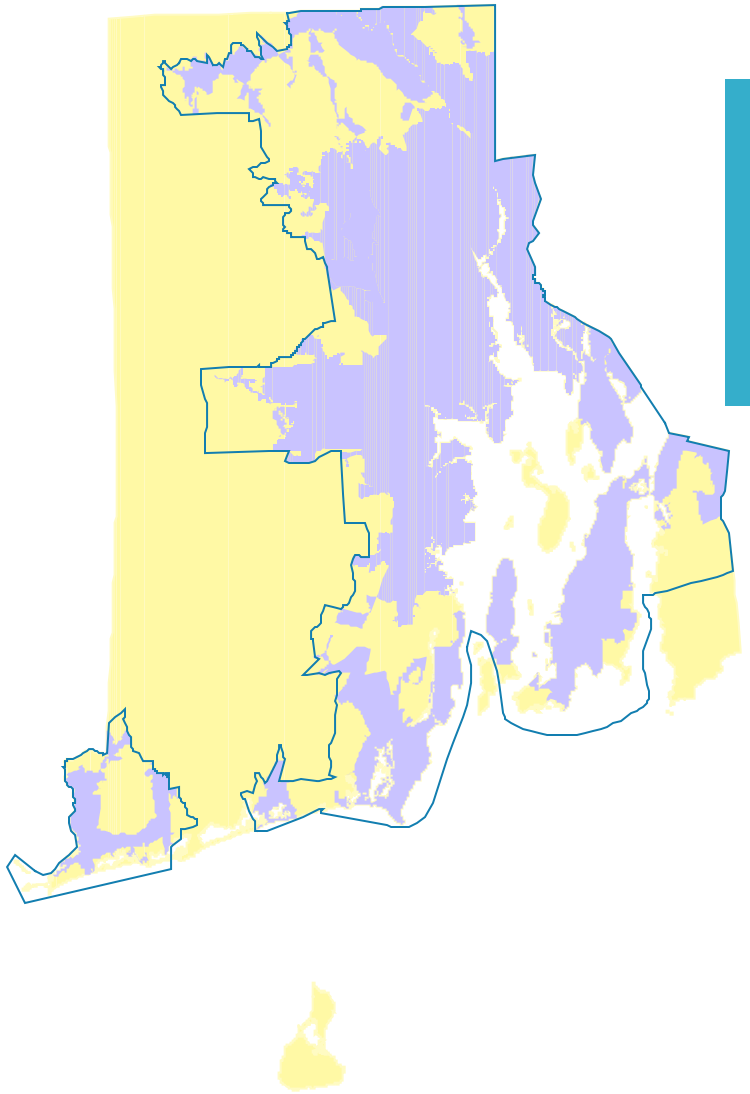
Input: City Town/ Village Centers



Output: Conceptual Geographic Template for Centers & Corridor Scenario

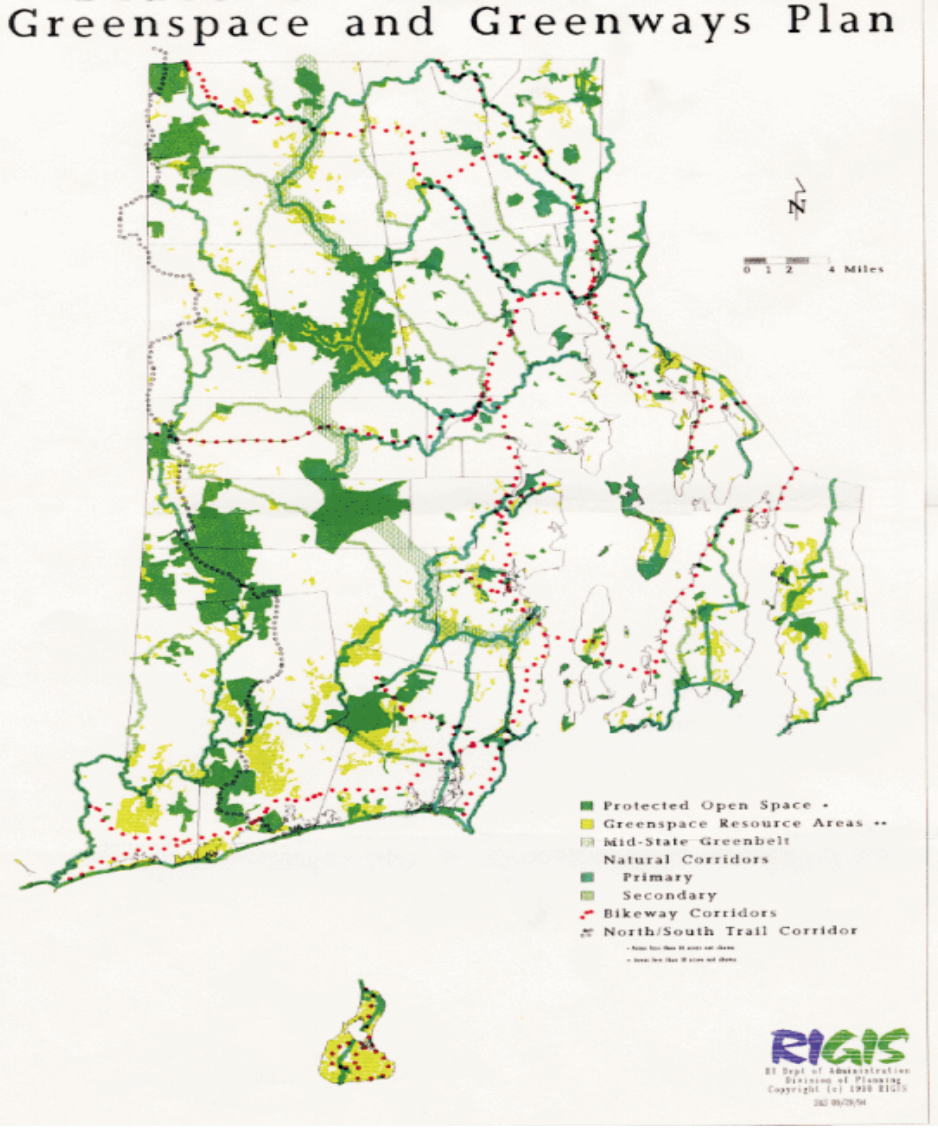
Potential Geography of Infill Scenario

2000 Census Urban Boundary



2000 FHWA Urban Boundary

Step 3: Delineate conservation priority areas for each scenario



Input: Land Assigned categories “D” and “E” intensity in Step 1

Input: Greenspace and Greenways Plan template

Input: DEM Land Protection Plans

Output: Primary and Secondary Conservation Areas for use in Scenarios

Step 4: Calculate land area *needed* for new development under differing scenario assumptions

Overall 2025 "needs" calculated in Part 3. Assume no major changes in land use efficiency

- **Residential land needs based on projections of population and household growth**

Trend = 65,000 +/- added acres

- **Commercial, Industrial, Mixed based on projections of employment**

Trend = 23,000 +/- added acres

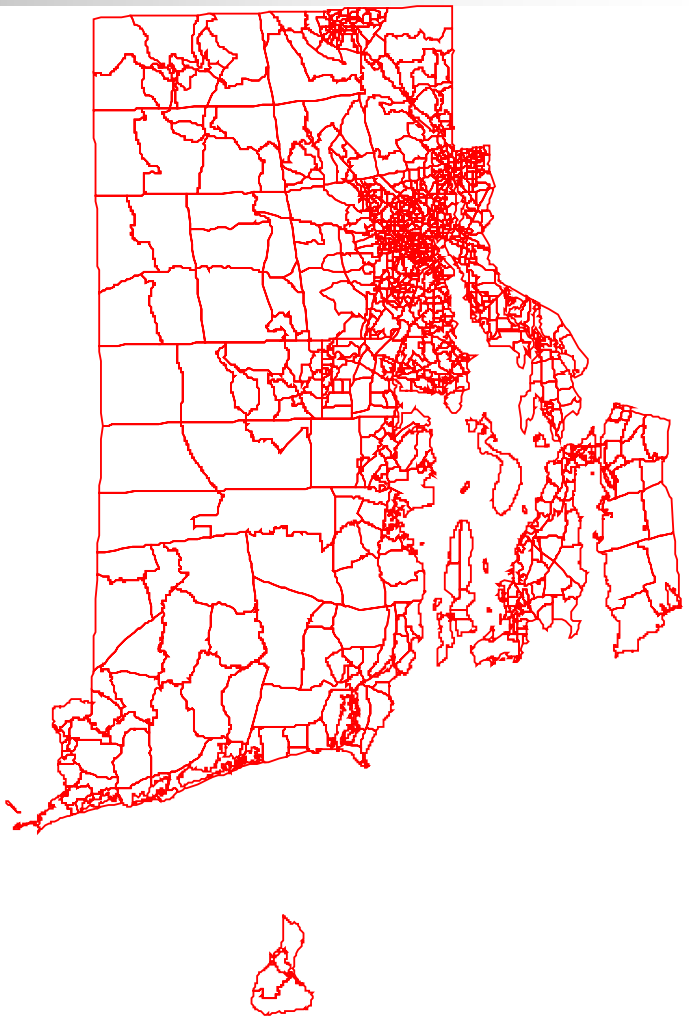
- **Other scenarios use these as base, but adjust downward for <u>assumptions</u> of improved land use efficiency for new development**

Step 4: Overall new land area *needed* for growth under differing scenario assumptions (figures in acres)

Scenario:	Residential	Commercial/ Industrial/ Mixed	Institutional	Total:
Trend (100%)	65,000	23,000	1,200	89,200
C & C (90%)	58,500	20,700	1,080	80,280
Infill (85%)	55,250	19,550	1,020	75,820
Composite (80%)	52,000	18,400	960	71,360

Step 5: Assign development land to each scenario based on future growth“need” assumptions

- Calculate on Analysis Zone basis
- Seek to assign based on needs for different intensity category land needs within each zone
- Assign priority land first; then secondary
- Adjust as necessary to fulfill scenario land needs



Step 5: Land Assignment for Growth (Hypothetical Zone X --w/in a Center)

Zone "X"		Trend		Cen.& Corridors		
	2000	2025	△	2025	△	
Population	100	150	50	175	75	
Housing Units	45	75	30	85	40	
Jobs	200	315	115	350	150	
Resid. Acres	100	150	50	145	45	
High Intensity	15	23	8	27	12	
Med. "	45	68	23	72	27	
Low "	40	62	22	46	6	
CMI Acres	40	63	23	39	60	

Step 6: Assess Transportation System Effects of Each Scenario

- Load socio-economic data for each scenario into RI Statewide Transportation Model
- Run model for each scenario
- Identify traffic impacts:
  - Changes in total DVMT
  - Changes in distribution of VMT and congested areas
  - Other effects
- Limitation: no transit mode in model at present

Step 7: Select 2025 Land Use Plan

- Assess Scenarios with Technical Committee
  - Conformance to goals/objectives
  - Transportation System effects
  - Differences with Composite of Local Future Land Use Plans
- Select optimum plan

Step 8: Compare 2025 Future Land Use Plan with Composite of Municipal Plans

- Adjust selected plan where deemed prudent
- Identify areas to be reviewed during next Comprehensive Plan update cycle

Challenges

- Complex methodology
- Steps outlined, but technical GIS steps still need to be worked through
- Dataset limits & gaps
- Using GIS tools new to us
- Will be pushing our envelope
- May have to “back up” if blind alleys found
- May have to scale back ambitions, if we bog down

BUT, that being said...

- Would be disservice to state of planning profession, and decade and half of GIS development if we didn't try to utilize the GIS "toolbox" for some aggressive analysis and "what ifs" in devising RI's new future land use plan
- Really no other way anymore to do this type of statewide analysis

Tell us what you think...

- Overall methodology
- Land assignment decision matrix
- Scenarios...
  - Geographic Templates
  - Assumptions
- Other aspects & issues...